Idaho State Department of Agriculture

Minidoka County Basalt Aquifer Regional Project Pesticide Detections and Idaho's Pesticide Management Plan

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This fact sheet summarizes pesticide detections in ground water found by the Idaho State Department of Agriculture (ISDA) in the Minidoka County Basalt Aquifer regional project (also referred to as the Minidoka County Deep Aquifer regional project), which covers the south-central portion of Minidoka County and small portions of Lincoln, Jerome and Blaine Counties in south-central Idaho (Figures 1 and 2). The Minidoka County Basalt Aquifer regional project began in 1997 as a result of previous monitoring by the Idaho Department of Water Resources (IDWR) in which elevated nitrate and low level pesticide concentrations were detected.

The Minidoka County Basalt Aquifer regional project encompasses an area of approximately 450 square miles. The project area is predominantly irrigated agricultural land and is located north of the ISDA Minidoka County Alluvial Aquifer regional project and the Snake River. The project area depends on irrigation from surface water diverted from the Snake River and ground water from the Eastern Snake River Plain Aquifer (Rupert, 1997; Mitchell 1998). Local irrigation practices include both flood and sprinkler irrigation. Major crops in the area include potatoes, sugar beets, wheat, barley, alfalfa hay, corn and beans (USDA National Agricultural Statistics Service, 2009).

The basalt aquifer that underlies the top soil and clay layers in the project area is a portion of the Eastern Snake River Plain Aquifer (ESRP Aquifer). The ESRP Aquifer is a regional source of water and the aquifer from which the samples for this project are taken. The ESRP Aquifer is made up primarily of a series of vesicular and fractured

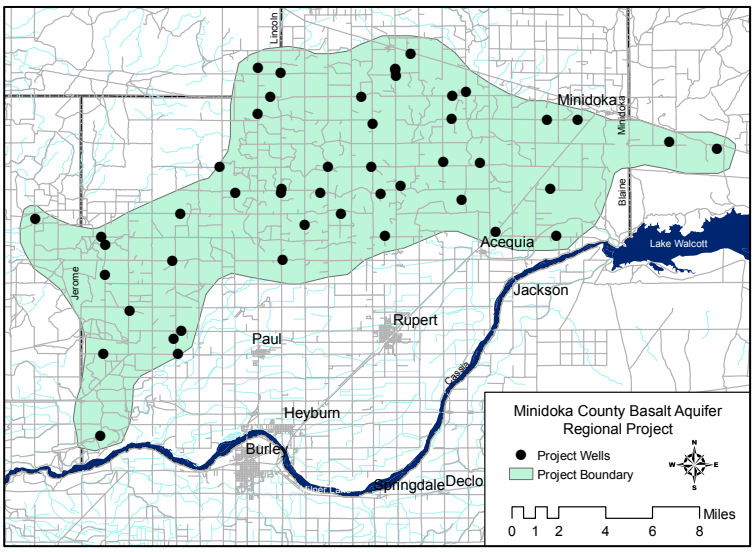

Figure 2. Location of project boundary and wells.

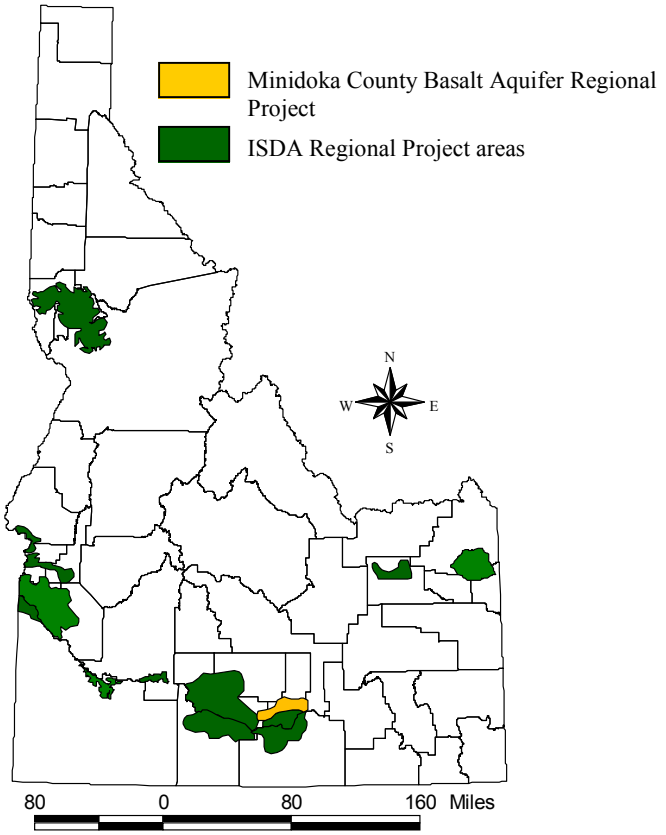

Figure 1. Location of Minidoka County Basalt Aquifer regional project and other ISDA regional project areas.

basalt flows of the Snake River Group and generally are less than 100 feet below the ground surface in the project area (Fox and Carlson, 2001). Well drillers' reports for the wells included in this project indicate static water levels typically between 150-300 feet below ground surface (Fox and Carlson, 2001).

To establish this regional monitoring project, the ISDA randomly selected domestic wells in the area and coordinated with homeowners to conduct ground water sampling. ISDA statistically determined that sampling 48 randomly selected domestic wells would provide adequate data to evaluate overall ground water quality (Figure 2). All sampling was conducted after a quality assurance project plan (QAPP) was established. Permission was gained from the land owners prior to sampling.

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2008 ISDA Pesticide Detections

In 2008, a total of 45 wells were sampled for pesticides and three wells had one or more pesticides detected within the ground water (Figure 3). Only two pesticides were detected. Atrazine and desethyl atrazine, a breakdown product of the pesticide atrazine, were each detected in two wells (Figure 3). All detections were within the Level 1 category established by the Idaho PMP and were below any health standards set by the EPA or the State of Idaho.

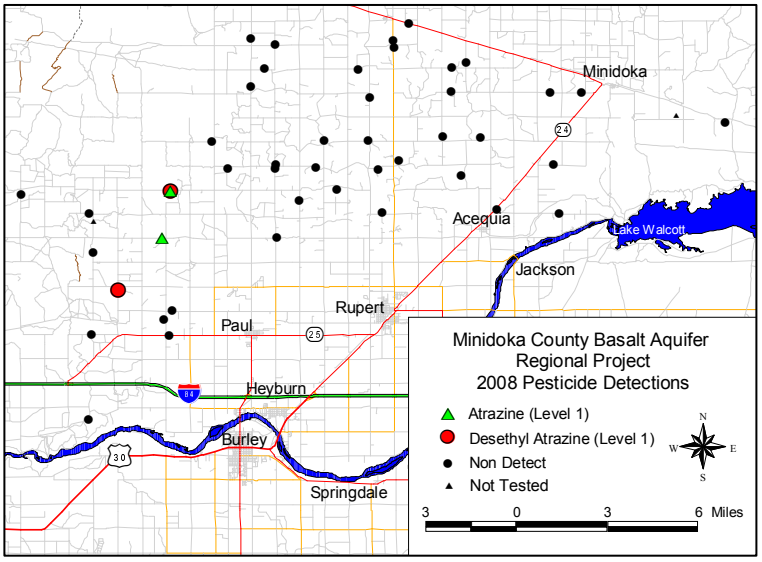

Figure 3. Pesticide detections from 2008 sampling.

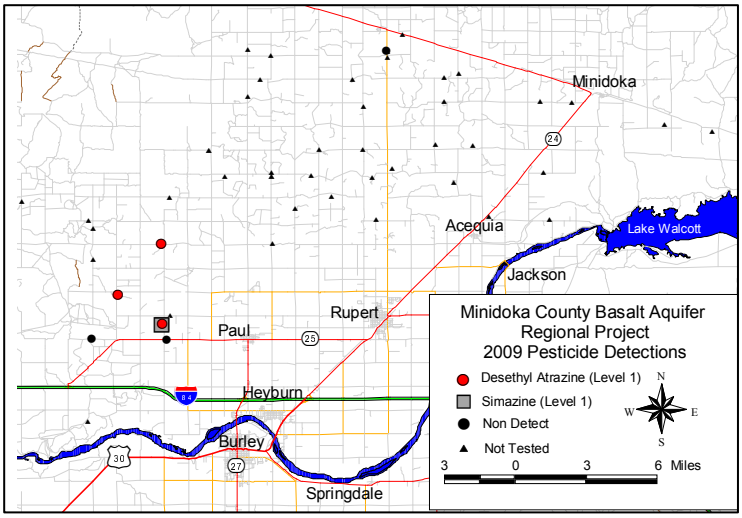

Figure 4. Pesticide detections from 2009 sampling.

2009 ISDA Pesticide Detections

In 2009, 6 wells in the regional project were tested for pesticides as follow up to previous detections. The pesticides detected were atrazine (Figure 4). All detections were below any health-based standards set by the EPA or the State of Idaho and are defined as Level 1 detections based on the Idaho PMP.

Before using any pesticide,

READ, AND FOLLOW THE LABEL!

Idaho Pesticide Management Plan (PMP)

The Idaho State Department of Agriculture (ISDA) is the lead agency in developing the *Idaho Pesticide Management Plan (PMP) for Ground Water Protection*. ISDA has the authority to implement pesticide programs through a cooperative working agreement with the Environmental Protection Agency (EPA), Idaho state laws, and department rules. The Idaho PMP outlines processes to protect ground water from pesticides and defines pesticide detections based on the concentration of the detection compared to a reference point. The reference point refers to health based concentrations. Idaho has adopted the EPA's Maximum Contaminant Levels (MCLs) in the Idaho Ground Water Quality Rule (1997). Where no MCL exists, ISDA will use EPA Lifetime Health Advisories (HAL) first if they exist, and then an EPA Reference Dose (RfD) number.

The PMP categorizes detection levels into the following levels:

Level 1: Detection above the detection limit to less than 20% of Reference Point.

Level 2: Detection at 20% to less than 50% of Reference Point.

Level 3: Detection at 50% to less than 100% of Reference Point

Level 4: Detection equal to or greater than 100% of Reference Point.

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REFERENCES:

Fox, J. and R. Carlson, 2001. Ground Water Quality of Minidoka County Basalt Aquifer. Idaho State Department of Agriculture Technical Results Summary #8.

Mitchell, John C., 1998. Waste Disposal Wells as a Factor in Nitrate Levels in Ground Water, A&B Irrigation District, Minidoka County, Idaho. Idaho Department of Water Resources 2 p, 1-6 maps.

Rupert, M.G., 1997. Nitrate (NO2+NO3-N) in Ground Water of the Upper Snake River Basin, Idaho and Western Wyoming, 1991-95. U.S. Geological Survey, pp. 8-30.

United States Department of Agriculture (USDA), National Agricultural Statistics Service, Idaho Field Office, 2009. 2009 Idaho Agricultural Statistics...including Idaho State Department of Agriculture's Annual Report, pp. 36-59.